Those who argue for the prescriptive approach really are doing nothing more than proposing that the Commission undertake a rate case review of current access charge levels with a change in ratemaking standards from embedded costs to forward-looking costs.[8] Changing ratemaking standards might be appropriate *in the absence of competition* (which is not the case for access services) because a forward-looking cost approach might be less complex. However, forward-looking cost studies are not without their difficulties, either. The history of ratemaking attempts to rely on reproduction costs is instructive as to the difficulties encountered with that methodology. Of course ILECs' prices should never be set at forward-looking incremental costs because of the need to recover joint and common costs. Acknowledging that joint and common costs must be recovered is not to say that they can be allocated. The markups that must occur will be governed by demand and market conditions, as well as by cost.

It may be said that the prescriptive approach simply seeks to bring us closer to the benefits of competition sooner than the competitive process will, but, as I already explained in my paper and will explain below, prescription that misses the mark may actually prevent efficient competition from ever developing. The fact is that no competitive market ever prices mechanically at the cost of any competitor, and prescription of rates at regulatory estimates of that level may in fact distort, or even thwart, competition and may introduce significant

[8] This is very reminiscent of the arguments from earlier this century about whether historic costs or reproduction costs are more appropriate as the basis for rates. For a detailed description of this history, see Alfred E. Kahn, The Economics of Regulation, Vol. I, MIT Press (1988), pp. 37-39, and 107-116.

inefficiencies. Also, as I will explain in greater detail later, embarking on what is in effect a rate case review of access charges violates one of the crucial aspects of the Commission's price cap plan, the confidence that the price cap will not be recontracted during its term.

A market-based approach that is revenue-neutral at the outset, and that allows the ILECs reasonable opportunities and the flexibility to compete, also ensures that regulators do not break their part of the regulatory bargain. During the transition, and while the ILECs are still subject to rate limitations, there is an obligation to ensure that the rate-regulated company has a reasonable opportunity to earn a competitive return on its investment. This is not only a basic element of fairness and Constitutional responsibility, it is essential if the ILECs, who are responsible for over half of annual investment in the public switched network,[9] are to have the incentive, not to mention the ability, to participate to the full extent of their capabilities in the deployment of an advanced telecommunications infrastructure. But it is equally important that all participants have the flexibility to price in accordance with prevailing market conditions, and that there is no real-time lag between the emergence of competition and the flexibility of incumbents to respond to it.

While it may be convenient and easy to simply label the costs that are stranded by a change in policies or methods as "excess," or to characterize them, after the fact, and after they have already been approved for inclusion in rates, as inefficiencies and monopoly rent, it is absolutely necessary that the legacy of obligations and requirements from the old system not be

[9] Crandall and Waverman (1995), page 269.

a burden that is suddenly shifted to the regulated firm's shareholders, based upon regulatory fiat. It is essential to recognize that a significant portion of these costs result from social and regulatory policies, and that there must be a competitively-neutral mechanism available for recovery of these social burdens from all market participants, such as application of the principles of competitive parity or a fixed charge. If no provision is made for recovering these costs, competition will develop artificially based on the new entrants' avoidance of their social and regulatory obligations, not just on the comparable going forward efficiencies of the incumbents and the new entrants.

Drs. Baumol, Ordover, and Willig seem grudgingly to recognize this requirement when they state that "[t]he burden should be on the ILECs to demonstrate through clear and convincing evidence any sound public policy reasons why they should be permitted to charge prices for monopoly services that generate revenues in excess of forward-lookin (sic) economic costs."[10] They argue strenuously however that "the Commission should categorically deny additional recovery over and above forward-looking cost-based access rates to the extent that such recovery reflects overearnings, inefficiencies, misallocations, and overinvestment embedded in existing price cap levels." With the exception of misallocations, which usually are made pursuant to, or in direct compliance with, regulatory requirements, one can sympathize with the goals they are trying to achieve. The problem is that it is much, much

[10] Dr. Baumol (with Alfred Kahn and Paul Joskow) has explored at great length the significance and importance for an efficient competitive process, of proper cost recovery in the context of the electric industry. See W.J. Baumol, P.L. Joskow, and A.E. Kahn, "The Challenge for Federal and State Regulators: Transition from Regulation to Efficient Competition in Electric Power," position paper for the Edison Electric Institute, December 9, 1994

easier to write out this list than it is to actually identify these items in an administrative investigation. Indeed, the costs they allege are inappropriate were in most cases approved in just such a proceeding. They are suggesting that we go through the whole process of access rate-setting again (rather than just rebalancing) -- with the admonition to "get it right" this time. But Drs. Baumol, Ordover, and Willig just miss the point. The desire to do better is precisely what has led Congress to turn to markets, rather than another go at improving regulation.

VI. THE PRESCRIPTIVE APPROACH WILL INHIBIT COMPETITION AND SUBVERT ECONOMIC EFFICIENCY

Those who advocate a prescriptive approach to access reform argue that competition sufficient to allow reliance on market forces is not likely to develop for access services, at least not any time soon. Therefore, they conclude that the Commission should seek to obtain the benefits of competition by replicating the competitive outcome through an administrative estimate of forward-looking costs. The first problem with this line of thought is that it presumes regulators will be more effective at predicting the future than they have been in reviewing the past. Estimates of forward-looking costs are just that -- estimates -- and I see no reason to believe that the regulatory outcome of this estimate will be significantly better at replicating the true competitive outcome than any other regulatory approach.

The second problem is that it assumes that only forward-looking costs are relevant to the establishment of competitive prices. In competitive markets, there is a distribution of firms with different cost and operating structures. The market price is determined by the interaction of the supply and purchase decisions of all suppliers and consumers, and, over the long run, it will tend toward the level of the actual costs of the least efficient firm able to stay in the market and vie for customers. In such a situation, the firms with lower costs will enjoy positive economic profits.[11] This is an efficient result because it provides profit incentives for new entry and for increased investment by incumbent firms, while simultaneously encouraging efficient levels of output from every firm in the market.

But, prescribing rates based on the costs of the least efficient firm able to operate in the market is inherently unattainable. In changing competitive markets, there is constant entry and exit, so which firm is the marginal one is difficult to determine and changes quickly over time. Even in more concentrated markets, where sunk costs limit the number of competitors, determining the "correct" firm on which to base prescriptive prices requires knowledge of the shapes and positions of all firms' cost structures in order to choose the least efficient. This process would be an administrative nightmare and is unlikely to lead to an efficient outcome. It is the great benefit of market processes that this information is revealed through competition. In addition, setting prices in this fashion would still fail to capture the influences of market conditions, even if it was somehow feasible. Such prices would provide inadequate incentives for entry in dynamic markets such as telecommunications.

Drs. Baumol, Ordover, and Willig appear to be arguing that there is something new and improved about regulators' ability to review forward-looking costs, as opposed to reviewing

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[11] See Milton Friedman, *Price Theory*, (Aldine, 1976), pp. 123-126, for an insightful discussion of the relationship between costs and competitive equilibrium.

historic costs.[12] My opinion is that just the reverse is likely to be the case. And even reviewing carefully documented historical costs is an exercise fraught with difficulty and frustration. I can assure anyone that regulators, consumer advocates, customers and other intervenors reviewing regulated companies' costs try fervently to identify overearnings, inefficiencies, and overinvestment. My experience is that this is extraordinarily difficult to accomplish. As I just noted, this task would be far more difficult in terms of predicting future costs than it has been in reviewing past costs. Again, that is why markets, even somewhat imperfect markets, where available, are preferable to administrative proceedings. Accurate information about future events, such as changes in technology, demand responses, input price levels, cost of capital, and numerous other variables would be necessary to truly mimic the competitive process. It is for just these reasons that, given an opportunity to rely on market forces in place of regulation, Congress determined to do so.

Several parties have put forward proxy cost models that purportedly replicate competitive outcomes. These models are extremely complex and contain large numbers of assumptions about future events and other factors. Proxy cost models may be useful tools for some purposes, such as universal service fund sizing and to identify clearly high-cost areas, where absolute precision is not crucial since the analysis hinges primarily on the relative costs of different geographic areas.

[12] Although Dr. Baumol has acknowledged that every form of price regulation is beset by risk that regulators will miscalculate cost-based standards. William J. Baumol and J. Gregory Sidak, Toward Competition in Local Telephony, MIT Press (1994), p. 51.

Clearly, incremental improvements can be (and are being) made to these models to reduce their arbitrariness, but, in terms of accurately replicating the competitive outcome, every proxy model suffers from the same fatal flaw -- none come equipped with a crystal ball. Based on my observations, proxy models suffer from the same sorts of problems that were experienced in trying to apply integrated resource planning (IRP) to the electric industry. This detailed planning process exemplifies the complexities of making economic and technological projections. Under IRP, regulators using modeling techniques consistently overestimated traditional fossil fuel costs and underestimated the costs of alternative sources of supply, with real (and dire) consequences for utility decision-making that we are dealing with today. In my opinion, this patent failure of IRP is a major reason for the shift toward greater reliance on market forces throughout the electricity industry today. Markets are simply too dynamic and too chaotic to develop accurate predictive models.

Adoption of the prescriptive approach would be more than just harmless impatience with the competitive process. If the Commission seeks to estimate the competitive outcome, chances are that it will eliminate the competition itself by estimating either too high or too low. If its estimates are too high, entrants will have an uneconomic incentive to enter the market and the ILEC will be unable to compete, with the result that competitors who are less efficient than the ILEC will gain market share. If the estimate is too low, competition will not develop in the access market because no competitor will be able to come in and compete at prices that are below the efficient rate level. The central problem is that the administrative estimate of the competitive outcome inevitably will become the impetus behind the development of competition. In that sense, it is not "real" competition. The administrative estimate is more like the mechanical rabbit that greyhounds chase at the dogtrack. The direction that the dogs run is determined before the race even begins. Competitors have no choice but to compete based on the administrative estimate of forward-looking costs even if it is wrong, which it almost certainly will be. It is much too early, and counterindicated by the evidence, to give up on the competitive process in the local exchange and access market.

VII. THE MARKET-BASED APPROACH IS CONSISTENT WITH THE DEVELOPMENT OF EFFICIENT COMPETITION IN THE ACCESS AND INTERLATA MARKETS

Once access rates are rebalanced, efficient competition for access services will develop under a market-based approach based on new entrants' comparisons of their own costs with the ILECs' costs and recognition of other market conditions. This is not a distortion, it is a real comparison of *actual* costs, which is how markets operate. Suppliers and buyers of access services have the information to make the most informed decisions to ensure the efficient provision of access services. New entrants in the access market, left to their own devices, will make entry and provisioning decisions based on their knowledge of current and expected market conditions and their own costs. By contrast, regulatory prescription of access prices will provide the correct pricing signals only by accident or coincidence.

For example, under the market-based approach, new entrants are aware of market conditions and the cost characteristics of an efficient network (these are, after all, *their* networks). As competitors, they also recognize that prices will move towards cost as entry and competition occur and regulation recedes. The important point is that it is the actual workings of a genuine competitive market that causes this to happen. Knowing that ILEC pricing will move towards market-based rates as the new competitors enter and compete for access business, competitors will only enter if they believe that they have the ability to recover their sunk investments over the long term. However, the longer the lag between the potential entry of competitors and the permission for the ILEC to engage in competitive pricing, the greater the inefficiency that is introduced.

The market-based approach provides the correct incentives for entry by new firms, as well as providing incentives for efficient investment by incumbents. If ILEC prices are too high, efficient competitors will enter, induced by the transitional profit evident between market prices and their costs. But, because government has signaled that it will not establish the rates, competitors will know that they will have to compete on the merits against the ILECs. This requires an efficient cost structure going in. Again, contrary to the assertions of Drs. Baumol, Ordover, Willig, and Kwoka, it is the market-based approach that will provide the correct incentives for efficient market entry.

The market-based approach also provides ILECs with the appropriate incentives for infrastructure investment by creating the opportunity to invest in more efficient technologies and services and earn a market-based profit on these investments to the extent that they are successful. If the profit incentive is eliminated by setting rates at the estimate of the bare cost of the most efficient conceivable network configurations, there is no incentive for the ILEC to continue to invest. At the same time, there is also little incentive for the new entrant to enter or invest, since the best it can hope for is to break-even.

Dr. Kwoka argues that LECs will be able to use the flexibility granted under the phases of the market-based approach to crush nascent competition, but that analysis ignores the connection between the regulatory relief granted and the changes in entry conditions. Under the Commission's proposal, and my suggested modifications in the initial round of comments, relief only occurs when entry conditions are such that market forces replace direct regulatory control in disciplining the behavior of the ILEC. The actual opening of entry, including the efficient provisioning of interconnection, unbundled network elements, and resold services, is the "coherent theory" relating the triggers to the regulatory relief that Dr. Kwoka asserts is absent in the market-based approach. Also, because the proposed relief is tied to actual changes in entry conditions, the market-based approach satisfies the requirement of Drs. Baumol, Ordover, and Willig that it be associated with actual competitive conditions. Properly applied, the requirements of the Act fundamentally change the economics of entry in this industry.

In terms of the proposed relief, the commenters supporting the prescriptive approach simply begin by assuming that the changes in entry conditions are not sufficient to discipline the actions of the ILEC, and they proceed from that assumption to describe how the ILEC will then use its market power in conjunction with the regulatory relief to engage in anticompetitive actions. I disagree with their premise. Entry conditions, particularly the reduction in sunk costs, are critical features of markets in terms of assessing market power. As I described in my paper, the changes in entry conditions proposed as triggers are sufficient to prevent the ILECs from using the regulatory relief for the exercise of market power.

Drs. Baumol, Ordover, and Willig claim that the triggers are unproven in their ability to discipline the market. However, this claim flies in the face of evidence in areas where these triggers have set in motion actual competition. The availability of interconnection, unbundled network elements, and the other elements of the triggers in Michigan and Illinois have set the competitive process in motion. Even if these triggers did not immediately result in full competition, it is clear that they provide the discipline of potential competition until actual competition develops. Interestingly, a review of the history leading to consideration of these triggers in Congress and to Ameritech's Customers First Plan, which preceded the Act, shows that these triggers are among the requirements that competitors insisted upon for the opening of the local exchange and exchange access markets to competition. It is disingenuous of these commenters to now say that the triggers are somehow unproven or untested, when they represent exactly what they requested.

For Phase 1 relief in the interstate access market, the appropriate triggers are as follows:

1) unbundled network element prices approved by state regulators;
2) transport and termination charges are based on the additional cost of transporting and terminating another carrier's traffic;
3) wholesale prices for retail services are based on reasonably avoidable costs; and
4) network elements and services are capable of being provisioned rapidly and consistent with a significant level of demand.

The relief that I proposed for Phase 1 includes the following changes in current requirements: (i) allow geographic rate deaveraging for all access services; (ii) permit promotional pricing, such as volume and term discounts; (iii) allow contract pricing; (iv) deregulate new services; (v) lower the "no earnings sharing" X-factor in the price cap from 5.3 to 4.0; and (vi) permit growth discounts. Nothing in the commenters' arguments leads me to believe that additional flexibility in pricing for incumbents is not required as entry is significantly facilitated and the potential for competition expands. If the Commission's goals of affording all participants in the market an even-handed opportunity to compete, affording ILECs a reasonable opportunity to recover already incurred costs, and improving the efficiency with which services are provided, such flexibility is absolutely essential. In a world where market forces are determining prices, the absence of pricing flexibility leaves the incumbent firms being asked to compete with two hands tied behind their backs -- a result that would introduce significant inefficiencies into the process. The protections adopted in the Act with respect to entry will provide adequate protection to those customers not eligible for contracts or special discounts.

Phase 2 in my recommendation is triggered by the actual presence of competition, demonstrated in a similar fashion to the way that it is in the Act's test for BOC interLATA entry, *i.e.*, the presence of one or more competitors providing access services predominantly over their own facilities. The appropriate regulatory relief in response to an actual, facilities-based competitive presence is to grant non-dominant classification and to remove price cap regulation for ILEC access services.

The proposed relief simply allows the ILECs to respond to market demand in exactly the same way that new entrants are likely to do. Any restrictions that do not allow them to respond in this manner are anticompetitive because they asymmetrically prevent one carrier from competing, thereby diminishing actual competition to the detriment of consumers. AT&T made similar arguments for years in order to get regulatory relief in the interLATA market that would allow it to respond to competition in the same way that MCI, Sprint, and other carriers did. AT&T's arguments were well-founded then and the ILECs' are well-founded now.

In response to the argument that access rates in excess of incremental cost give the ILECs' affiliates an unfair advantage in the interLATA market, the fact is that the ILECs will be required to charge its interLATA affiliate, or impute to itself, exactly the same price for access that it charges un-affiliated IXCs. There is a theoretical construct within which the ILEC is able to reduce its own effective access price by stimulating additional access revenues through lower retail interLATA prices, but, as I described in detail in my earlier paper, the narrow conditions under which such a strategy would be successful are highly unlikely to occur. Also, because of the imputation requirement it cannot succeed in harming long-distance competition. At any rate, this argument is simply a pretext for demanding that the ILECs provide access at rates at which they cannot recover their costs.

Drs. Baumol, Ordover, and Willig also point to three other possible market conditions which, absent a regulatory prescription of forward-looking access rates, they allege give the ILEC a competitive advantage: 1) the offering of bundles of services at one price will give ILECs the opportunity to create an anticompetitive price squeeze; 2) the choice of the terminating access provider is outside of the control of the paying consumer; and 3) access competitors using unbundled loops also will have to provide customers with local exchange service.

The ability of carriers to offering bundled services at one price is likely to be one of the most vital assets for any company, but it will not be very difficult to fit imputation requirements into such a setting in order to prevent a price squeeze from occurring. The most straightforward solution to this problem would be a requirement that the price for the bundle be within some range of the sum of the prices of the component parts. However, it would not be appropriate to require that the price of the bundle be equal to the sum of the component prices because there are likely to be some scope economies associated with "one-stop shopping." More importantly, the availability of unbundled network elements will make it very easy for IXCs and CLECs to match the prices offered by the ILECs for the bundle of services, as well as for any particular services, if it is priced outside a reasonable range.

The terminating access market externality is very real. However, the availability of unbundled network elements lessens any market power that could theoretically result from this externality. While some control of terminating access rates may be required in the short run -- for example, by capping them at originating rates -- the terminating access market externality is not a factor in the development of access competition.

In terms of the requirement that access competitors using unbundled loops must also offer the customer local exchange service, this is not an entry barrier, it is an entry opportunity. The competitor has the opportunity to offer alternative access while at the same time gaining access to the additional revenues available from end-user customers' local exchange needs. If a company offers an employee an annual salary plus the opportunity to earn a bonus, is the bonus considered a barrier to employment?

Contrary to the assertions of Dr. Kwoka, deregulation of genuinely new access services under the market-based approach will facilitate the development of true competition and will provide several benefits to customers of access services. Allowing ILECs to develop new services and bring them to the market quickly at prices reflecting market conditions gives them the opportunity to profit from their innovation and thus provides the correct incentives for innovation.[13] Such innovation by ILECs also provides a powerful incentive for new entrants to introduce new services into their networks.

The ability to introduce new services will not impact the availability of existing core services. With this in mind, it is clear that ILECs will have no undue market power with respect to the new service. Because the ILEC will be introducing the new service with the hope to sell it, it cannot price the service higher than its value in the marketplace. A concern raised by the commenters is that consumers of new services that are deregulated will benefit from these innovative efforts, but that consumers of core services will not. This concern is misplaced. First, if core services are neglected, this will provide an opportunity for CLECs and other access competitors to use that neglect to enter and meet those needs that the ILECs fail to meet. Second, it is in the interest of the ILEC to continue providing affordable, effective core

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[13] Ameritech proposes that "new services" in terms of deregulation under the market-based approach be defined in a technical sense, and not simply as new pricing options for existing services.

services as long as there is the potential to profit from doing so. Under the market-based approach, those incentives continue to exist under the price cap during the initial stages, and later when competition has emerged.

VIII. THE MARKET-BASED APPROACH IS CONSISTENT WITH THE EXISTING PRICE CAP

Only the market-based approach to rebalancing access rates in a revenue-neutral manner is consistent with the principles of price cap regulation. As I have already noted several times, the prescriptive approach essentially requires that the Commission undertake a rate-case review using a new ratemaking standard when it reinitializes the price cap indices (as opposed to reinitializing them under the market-based approach taking the current access revenue-requirement as a given). This would effectively result in the Commission unilaterally recontracting the price cap. No one disagrees that such action would undermine the incentives of price caps.

In May of 1995, while I was Chairman of the Massachusetts Commission, we adopted a price cap for the intrastate regulation of NYNEX. In that decision, we noted the following:

> In order for the incentives in a price cap plan to work most effectively, there must be a high degree of certainty that the plan will not be tampered with, or recontracted, save for compelling reasons. D.P.U. 94-50 (1995), p. 123.

The reason that recontracting undermines the operation of a price cap plan is that price caps are based on introducing the marketplace incentive for the firm to be more efficient by decoupling costs from prices, and giving it the ability to earn higher profits derived from aboveaverage efficiency. If the regulated firm does not trust the commitment of the regulator not to undertake a rate case review during the term of the plan, the incentive is undermined.

Ameritech and the other ILECs are not suggesting immediate deregulation of access services as relief; they are asking for modifications to the FCC's rules and price cap requirements. These changes are appropriate because the rules that are being modified are (increasingly) redundant to the marketplace forces that are introduced concurrent with changing market entry conditions. Also, the proposed relief will allow ILECs to respond to competition in the same way that new entrants do. Dr. Kwoka seems to equate the freedom of ILECs to respond to competition with the freedom of ILECs to act anticompetitively, but under my recommendations the proposed relief is only granted when entry conditions change in such a way as to prevent the ILEC from pricing anticompetitively.

Changes in price cap requirements in response to changes in entry conditions will bring price caps closer to the theoretical ideal that Dr. Kwoka points to. He notes that many price cap plans contain various components that stray from a "true" price cap. I agree, but I conclude that relaxing price cap rules in response to market developments will allow a fuller realization of the benefits of "true" price caps. As Dr. Kwoka eloquently notes, "[p]rice caps are one of the truly novel and practicable regulatory innovations of recent times." In order to maximize the benefits of this novel and practicable regulatory innovation, the current price cap rules should be relaxed and removed as market entry conditions evolve.

IX. CONCLUSION

There is a temptation for regulators who are committed to bringing the benefits of competition to consumers, as the FCC Commissioners clearly are, to jump-start the competitive outcome in order to bring the benefits of competition to consumers now. This impatience with the pace of competition is understandable, but it will have serious negative consequences. The problem is that doing so undermines the competitive process itself, which is the only mechanism capable of determining what the best outcome for customers is. Fortunately, the market-based approach to access reform allows the competitive process to work while still providing some immediate benefits. By rebalancing existing access rates in a revenue-neutral manner to make them more economically-efficient, the Commission will give consumers real, immediate benefits from this access reform effort as a "down payment" for the competitive process that Congress, the Commission, and the states have set in motion. The market will then be free to determine over time the most efficient rate structure and rate levels for the provision of access services.

An integral part of setting the stage for the development of a competitive marketplace for a service in which incumbents are subject to stringent regulation is to reduce regulation of the incumbents in response to changes in entry conditions. This ensures that competition rewards carriers on the basis of their prices, service quality, and reliability, not on the basis of asymmetric regulatory burdens. Ameritech's proposal for triggers and phases is a reasonable framework for the market-based approach to access reform and should be approved.

The Commission should not be swayed by arguments of those who favor the prescriptive approach in the hope of relitigating the Commission's previous commitment to market-based price regulation. Arguments for the prescriptive approach are based on the premature assumption, just one year after passage of the Act, that the competitive process is not working. As Chairman Hundt recently noted, jumping to conclusions this way "is like writing about a baseball game by only describing the action after six and a half innings."[14] Similarly, Commissioner Ness said: "It's just too soon to expect that the benefits Congress intended would be pervasive in the marketplace, when the first phase of implementation is not yet complete. It's a bit like taking a trip with your kids. Getting into the car. Driving to the end of the driveway. And then they ask: Are we there yet?"[15] It is time for the Commission to allow the market to do what the Congress intended it to do. The market-based approach to access reform is the only solution that is consistent with the competitive process.

[14] Chairman Reed E. Hundt, before The Freedom Forum and Georgetown University, February 7, 1997, as quoted in the transcript posted on the FCC Internet page.

[15] Commissioner Susan Ness, before the Atlanta Chapter of the Federal Communications Bar Association, February 4, 1997, as quoted in the transcript posted on the FCC Internet page.

Attachment B

Implementation of Rate Structure Modifications

Assumed Implementation Scope:

This assessment and timeline of rate structure modifications assumes a rate structure consistent with those advocated by Ameritech in its Docket 96-262 Comments filed January 29, 1997. The major item proposed by the FCC changes the local switching rate element dramatically.

Timeline:

The estimated timeframe for implementation of major rate structure changes is 29-40 weeks. Concurrent activities are utilized wherever possible to shorten the overall interval; it is unclear at this point if any of the proposed changes would be eligible for a shortened implementation interval.

Seven phases, for both ILEC-providers and IXC-customers, are required to implement a new rate structure; they are outlined below:

- Project planning and team organization (1 week)
- Business requirements definition and negotiation (6-7 weeks)
- Technical and process requirements definition (6-8 weeks)
- Software design/development (coding) and process/documentation development (6-8 weeks)
- Software and process testing (system and acceptance) (4-6 weeks)
- Service center documentation/training (2-4 weeks)
- Software installation and conversions (4-6 weeks)

Project planning and organization
Time estimate: 1 week

During this phase, the necessary personnel, including subject matter experts, are assembled to outline specific plans, roles, and responsibilities for implementation. Up-front participation and interaction ensures that all aspects of a rate structure change are cared for and all necessary process/system impacts are identified.

For the proposed changes arising from access reform, the likely participants will include representation from marketing/regulatory, access billing, access ordering, usage processing, service center operations, network, customer account management, external communications, and finance functions. The team collectively will detail plans and set responsibilities and commitments.

Business requirements definition and negotiation
Time estimate: 6-7 weeks

The concepts outlined above are developed into the specific changes required for billing implementation and specifically translated into programming changes to meet the required rate structure changes. Through several iterations, individual pricing decisions and other change criteria are developed and documented.

Detailed issues related to process limitations and constraints will be identified and alternatives negotiated. Each functional area becomes familiar with the new rate structure so that it can proceed with its individual, yet synchronized, implementation. Industry negotiations, especially through the Ordering and Billing Forum, define all interface changes between ILECs and their access customers. For the scope of access reform, critical path details are:

- Recording/data requirements for line and trunk port charges
- Ordering requirements and Access Service Request (ASR) changes
- Ordering and Billing Forum negotiations

Technical and process requirements definition
Time estimate: 6-8 weeks

Several processes and systems are affected by rate structure changes. During this phase, the business requirements are translated into detailed system and business process impacts. Systems/processes affected include: ordering, provisioning, billing, message recording, message processing, quality assurance, billing inquiry. Deliverables for this phase include:

- Detailed technical specifications (e.g. impact analysis/design of system programs, system tables, on-line screens and system interfaces)
- Process impact analysis (e.g. report design, method/procedure outline, bill and service order exhibits, service center impact analysis).
- Vendor specifications for Bellcore supported systems
- Industry specifications from the Ordering and Billing Forum
- ILEC and IXC interface specifications

Software coding and process development
Time estimate: 6-8 weeks

During this phase, all software coding modifications is completed and unit tested. Multiple system development organizations work concurrently to make the necessary changes. Also, any new or revised manual or procedural processes will be developed during this timeframe. Online or paper documentation for customer service centers to support order processing, bill generation and billing inquiries is developed.

Software and process testing (system and acceptance)
Time estimate: 4-6 weeks

All systems then test the changes made to ensure that usage, orders and bills are being processed in a timely and accurate manner, network and other downstream affects are occurring as expected, and the outputs and processes are accepted by users and production personnel. Two levels of testing occurs -- system testing and production acceptance testing. Testing (e.g., testing of bill date formats) between the ILECs and IXCs occurs in this phase as well.

Service center documentation/training
Time estimate: 2-4 weeks

Occurring simultaneously with system testing, documentation and training material are developed for the front line service center operations and the IXCs. Trainers then deliver the information to the service centers across the company and communicate the information to IXC customers.

Software installation and conversions
Time estimate: 1 week (systems)
4-6 weeks (order conversions)

The new software is prepared and installed into a production environment. All concurrent activities converge so that the systems are synchronized for operations on the effective date of the tariff. Front line customer activity can then proceed. Final testing and communicating with the interexchange carriers on ASR and bill format changes are completed.

CERTIFICATE OF SERVICE

I, Todd H. Bond, do hereby certify that a copy of the foregoing Reply Comments of Ameritech on Notice of Proposed Rulemaking has been served on the parties on the attached service list, via first class mail, postage prepaid, on this 14th day of February, 1997.

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